

RECORD DRAWING

01-2012

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LEVEE SETBACK REPAIR - 2012



CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555 (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

PPROVED JOHN ENGEL, P.E 01-201 PROJECT: N/A FIELD BOOK: WATERSHED SCIENCES 03-201 PROJECT KATE AKYUZ 01-2012 URVEYED: SURVEY BASE MAP: WATERSHED SCIENCES 03-2011 PROJECT 01-201 WES KAMEDA, P.E. KCDNRP 04/2011 01-201 DESIGNED: CAROLYN BUTCHART, P.E FL7048 01-2012 REVIEWED: JOHN ENGEL, P.E.

BY DATE DESIGN ENTERED: LICA DULAN







King County
Department of Natural Resources and Parks
Water and Land Resources Division River and Floodplain Management Section

Christie True, Director

CEDAR RAPIDS LEVEE SETBACK REPAIR - 2012

COVER SHEET, LOCATION MAP, VICINITY MAP

SHEET OF 11 SHEETS FL7048

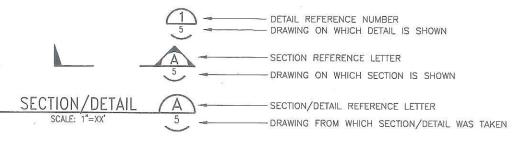
GENERAL NOTES:

- 1. DATUM: H. NAD 83/91, V. NAVD 88
- 2. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND COUNTY PERMIT REQUIREMENTS AND CONDITIONS.
- 3. RESTORATION PLANTINGS IN A PORTION OF THE SITE WILL BE COMPLETED BY THE OWNER FOLLOWING CONTRACTOR PROJECT CLOSEOUT, AS SHOWN ON SHEET 9.
- 4. THE CONTRACTOR SHALL CALL 1-800-424-5555 TWO WORKING DAYS BEFORE DIGGING,
- THE CONTRACTOR SHALL PROVIDE TEMPORARY ACCESS AND STAGING PLAN TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. ALL DISTURBED AREAS SHALL BE RESTORED AND APPROVED BY THE ENGINEER.
- 6. ALL EXISTING TREES NOT SHOWN ON THE PLANS FOR REMOVAL ARE TO BE RETAINED AND SHALL BE FLAGGED IN THE FIELD BY THE OWNER PRIOR TO CONSTRUCTION. IF THE GRADING PLANS AND/OR THE TEMPORARY ACCESS ROAD IMPACT AREAS WITHIN THE DRIP LINE OF THESE TREES, THE CONTRACTOR SHALL REQUEST DIRECTION TO MINIMIZE IMPACTS. PROTECTION MAY BE REQUIRED PER 1-07.16(2) AS DIRECTED BY THE THE CONTRACTOR SHALL PROVIDE TREE PROTECTION PER STANDARD PLANS AND SPECIFICATIONS.
- 7. THE CONSTRUCTION DOCUMENTED IN THIS RECORD DRAWING REFLECTS THE WORK ACCOMPLISHED IN 2012 ON THE RIGHT BANK. NO CONSTRUCTION WAS DONE ON THE LEFT BANK.

CONSTRUCTION SEQUENCE:

- 1. FLAG THE EDGE OF EXCAVATION.
- 2. MEASURE AND MARK 20 FOOT OFFSETS LANDWARD FROM THE PROPOSED LANDWARD TOE EVERY 25-FEET.
- 3. MEASURE AND FLAG THE ELEVATION OF THE ORDINARY HIGH WATER MARK (OHWM), USING THE ASSISTANCE OF A
- 4. ON THE LEFT BANK, STAKE 20-FOOT OFFSETS FROM TOE OF RIVERWARD SIDE OF THE PROPOSED LEVEE BERM, EVERY
- 5. INSTALL TEMPORARY ACCESS AS SHOWN ON TESC PLAN. CLEAR WORK AREAS AND INSTALL TESC MEASURES AS SHOWN ON TESC PLAN.
- 6. EXCAVATE RIGHT BANK BENCH TO FACILITATE ROCK REMOVAL FROM THE CHANNEL. STOCKPILE LÄRGE ROCK (3 MAN AND LARGER) FOR REUSE.
- 7. EXCAVATE BURIED REVETMENT AND LAUNCHABLE TOE, SECTIONS A-A AND B-B.
- 8. FROM THE RIGHT BANK TO THE EXTENT SHOWN IN SECTION D-D, REMOVE THE PREVIOUSLY PLACED ROCK FROM CHANNEL. BEGIN REMOVAL FROM THE RIVERWARD EDGE AND EXCAVATE BACKWARDS TOWARD THE BANK, EXCAVATE TRENCH FOR TOE ROCK. MINIMIZE DISTURBANCE TO THE STREAM BED AND TURBIDITY. RECONSTRUCT REVETMENT FACE, TOE AND GEOGRID LIETS.
- 9. CONSTRUCT BURIED REVETMENT IN LAYERS SUCH THAT THE QUARRY SPALL GRANULAR FILTER AND RIPRAP ARE PLACED IN THE BURIED REVETMENT SECTION AND LAUNCHABLE TOE AS PER SECTION VIEW.
- 10. FINISH LEVEE SECTIONS ABOVE EXISTING GRADE WITH NATIVE MATERIAL TO MATCH EXISTING LEVEE BERM ELEVATION AS
- 11. SCARIFY STAGING AREAS/ REPLANTING AREAS (SHEET 10) TO A MINIMUM DEPTH OF 12" AND STABILIZE PER TESC PLAN PRIOR TO DEMOBILIZATION.

DRAWING REFERENCE:



ABBREVIATIONS:

INDICATES THAT THE DETAIL/SECTION IS SHOWN ON THE SAME DRAWING

INDICATES THAT THE DETAIL/SECTION IS UNIFORMLY TYPICAL THROUGHOUT PROJECT EXCEPT "TYP" WHERE OTHERWISE NOTED

SPECIFIES THAT DETAIL/SECTION WAS TAKEN FROM SEVERAL DRAWINGS

NOT TO SCALE "NTS"

TEMPORARY EROSION & SEDIMENT CONTROL

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LEGEND: MAJOR CONTOUR (FT) MINOR CONTOUR (FT) OVERHEAD POWER OR UTILITIES — 100—YEAR FLOODPLAIN TRIBUTARY STREAM BUFFER WETI AND WETLAND BUFFER HIGH VISIBILITY FENCE ORDINARY HIGH WATER (OHW) RIVER BUFFER — PARCEL BOUNDARIES EXISTING CHAINLINK FENCE EXISTING EASEMENT SILT FENCE CONSTRUCTION LIMITS EXCAVATION LIMITS COFFERDAM OR **EQUIVALENT** POWER POLE ELJ - 2010 CONSTRUCTION (SURVEYED) ELJ - 2010 CONSTRUCTION (APPROXIMATE LOCATION) TEMPORARY STABILIZED CONSTRUCTION ENTRANCE VEGETATION CANOPY BOUNDARY SURVEY CONTROL

CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

(UNDERGROUND UTILITY LOCATIONS ARE APPROX.

King County Water and Land Resources Division

Christie True, Director

CEDAR RAPIDS LEVEE SETBACK REPAIR - 2012

GENERAL NOTES, LEGEND AND ABBREVIATIONS

STAGING AREA

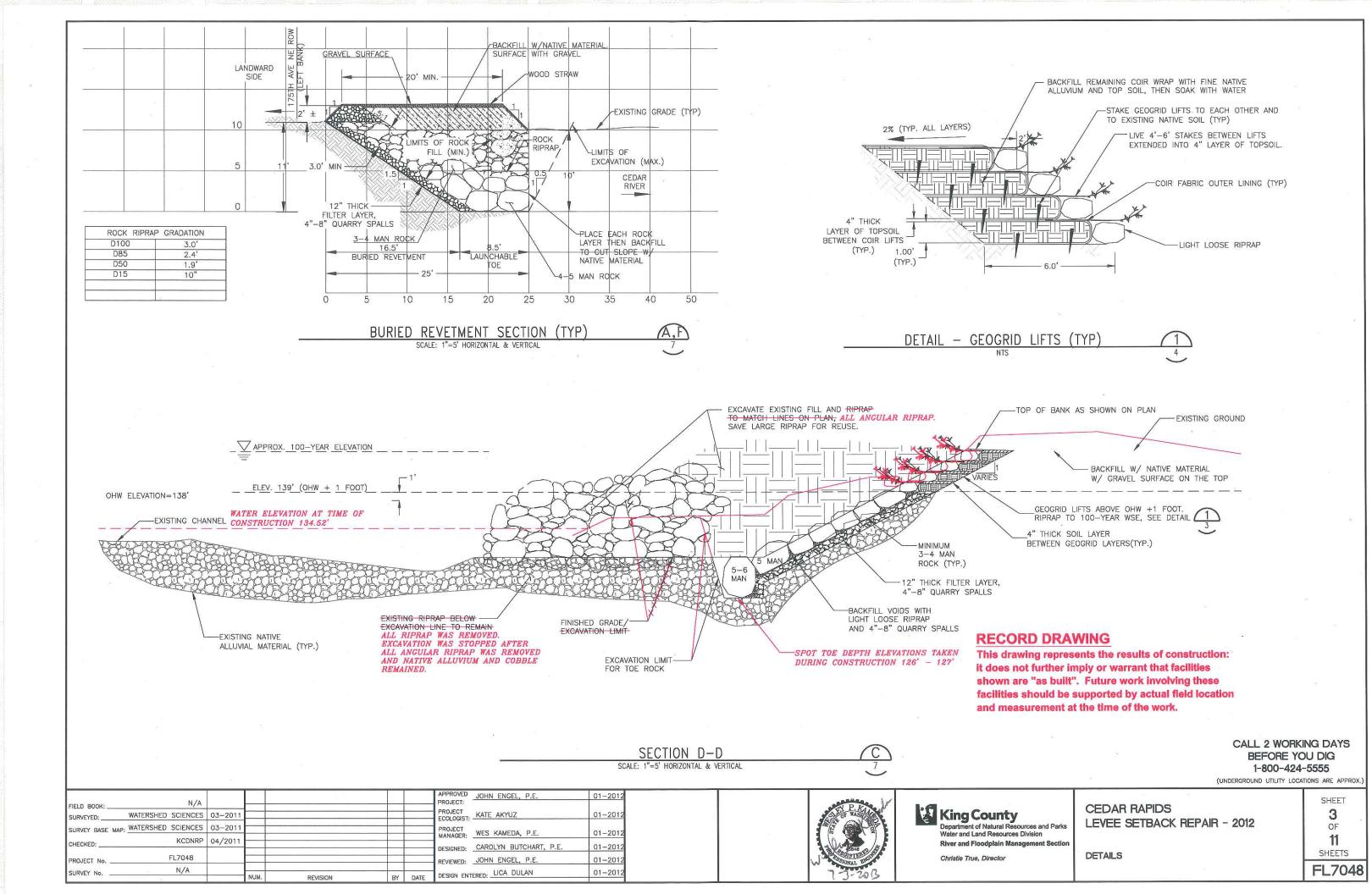
WETLAND BOUNDARY

11 SHEETS FL7048

SHEET

JOHN ENGEL, P.E. 01-201 N/A ROJECT: TELD BOOK: PROJECT WATERSHED SCIENCES 03-201 KATE AKYUZ 01-201 ECOLOGIS SURVEY BASE MAP: WATERSHED SCIENCES 03-201 PROJECT WES KAMEDA, P.E. 01-201 KCDNRP 04/2011 CHECKED: DESIGNED: CAROLYN BUTCHART, P.E. 01-201 FL7048 PROJECT No REVIEWED: JOHN ENGEL, P.E. 01-201 N/A SURVEY No DESIGN ENTERED: LICA DULAN 01-201 REVISION BY DATE

Department of Natural Resources and Parks River and Floodplain Management Section

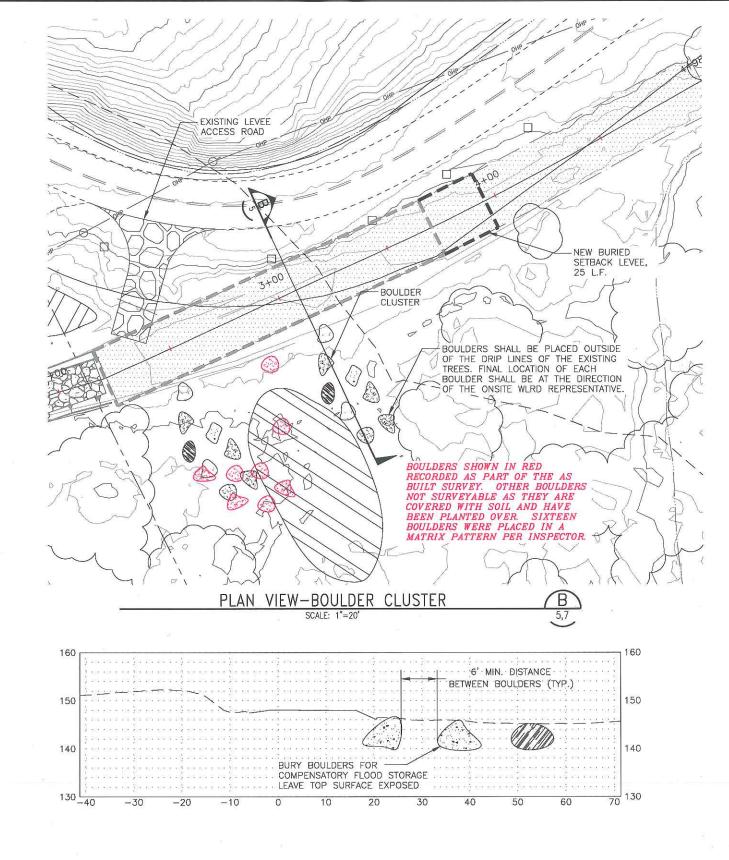


RECORD DRAWING This drawing represents the results of construction: it does not further imply or warrant that facilities shown are "as built". Future work involving these facilities should be supported by actual field location and measurement at the time of the work. STAGING -FXISTING BRASSFIELD REVETMENT EXISTING LEVEE SECTION C-C SCALE: 1"=10' HORIZONTAL & VERTICAL - MATCH TOP OF NEW LEVEE TO ELEVATION OF RAPIDS SETBACK LEVEE, BURIED ROCK TO REMAIN -PROPOSED LEVEE : EXISTING LEVEE, TOP **PROFILE** REGRADED SLOPE WITH ROCK FACED GEOGRIDS, SEE DETAIL SECTION D-D SCALE: 1"=10' HORIZONTAL & VERTICAL REMOVE 2011 LARGE ROCK FROM THE ROCK PLACED IN 2011 TO REMAIN. REGRADE AS REQUIRED TO MATCH CHANNEL AND RE RECONSTRUCTED LEVEE SETBACK LEVEE ROCK AND FACE ROCK ON 150 FOP OF BANK PLAN VIEW -30 CALL 2 WORKING DAYS SECTION E-E BEFORE YOU DIG 1-800-424-5555 (UNDERGROUND UTILITY LOCATIONS ARE APPROX.) JOHN . ENGEL, P.E. 01-2012 N/A FIELD BOOK: SHEET King County Department of Natural Resources and Parks Water and Land Resources Division WATERSHED SCIENCES 03-2011 **CEDAR RAPIDS** SURVEYED: KATE AKYUZ 01-2012 ECOLOGIST SURVEY BASE MAP: WATERSHED SCIENCES 03-2011 LEVEE SETBACK REPAIR - 2012 WES KAMEDA, P.E. OF 01-201 KCDNRP 04/2011 CHECKED: 11 River and Floodplain Management Section DESIGNED: CAROLYN BUTCHART, P.E. 01-2012 FL7048 PROJECT No. SHEETS DETAILS REVIEWED: JOHN ENGEL, P.E. 01-2012 Christie True, Director N/A

FL7048

DESIGN ENTERED: LICA DULAN

01-2012



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SECTION B-B

CALL 2 WORKING DAYS BEFORE YOU DIG 1-800-424-5555

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FIELD BOOK:	N/A						APPROVED JOHN ENGEL, P.E. PROJECT:	01-2012
SURVEYED:	WATERSHED SCIENCES	03-2011					PROJECT KATE AKYUZ	01-2012
SURVEY BASE MAP	: WATERSHED SCIENCES	03-2011					PROJECT MANAGER: WES KAMEDA, P.E.	01-2012
CHECKED:	KCDNRP	04/2011					DESIGNED: CAROLYN BUTCHART, P.E.	01-2012
PROJECT No	FL7048						REVIEWED: JOHN ENGEL, P.E.	01-2012
SURVEY No	N/A		NUM.	REVISION	BY	DATE	DESIGN ENTERED: LICA DULAN	01-2012





Water and Land Resources Division River and Floodplain Management Section

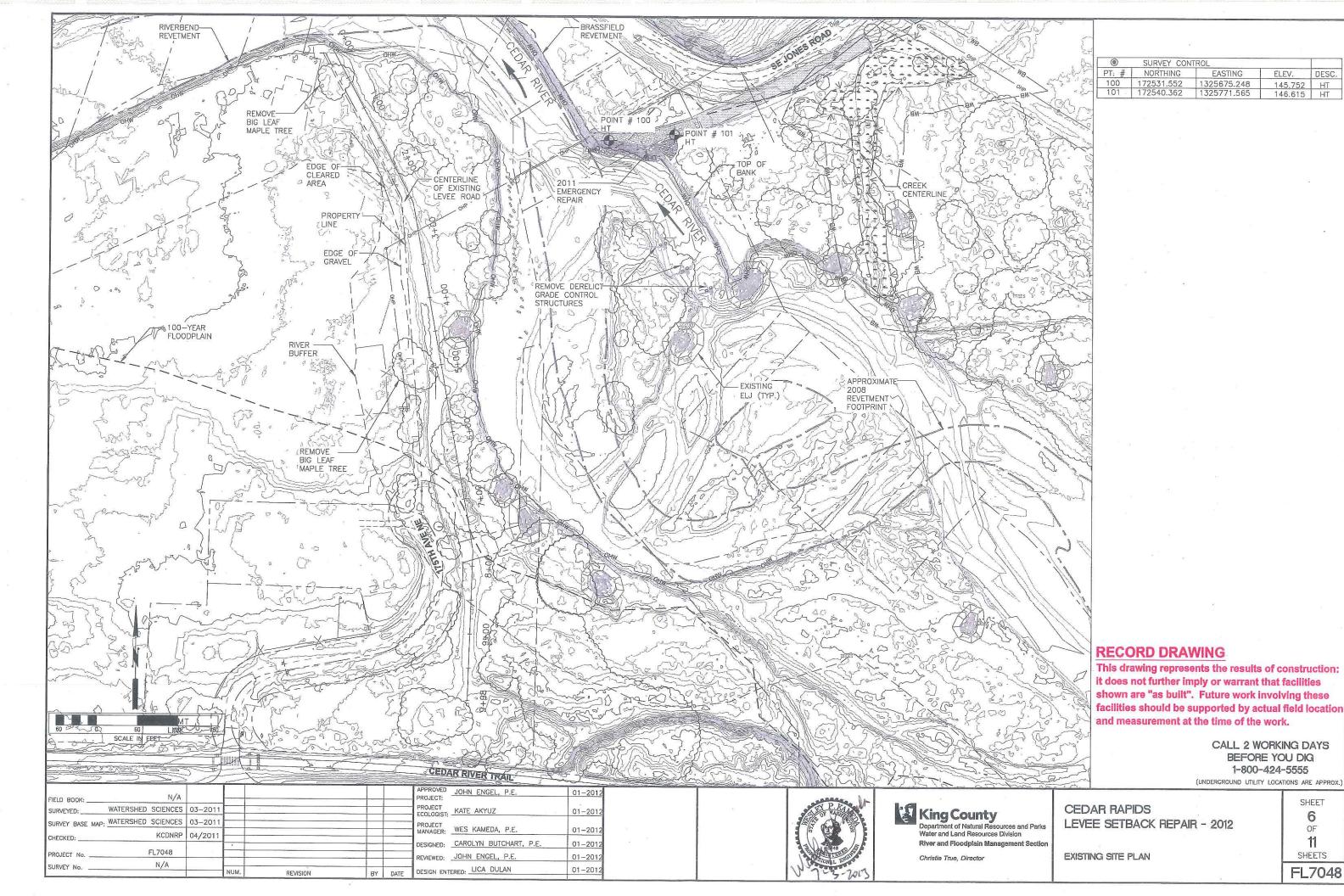
Christie True, Director

CEDAR RAPIDS			
LEVEE SETBACK	REPAIR	-	201

DETAILS

SHEET OF 11 SHEETS

FL7048



SHEET

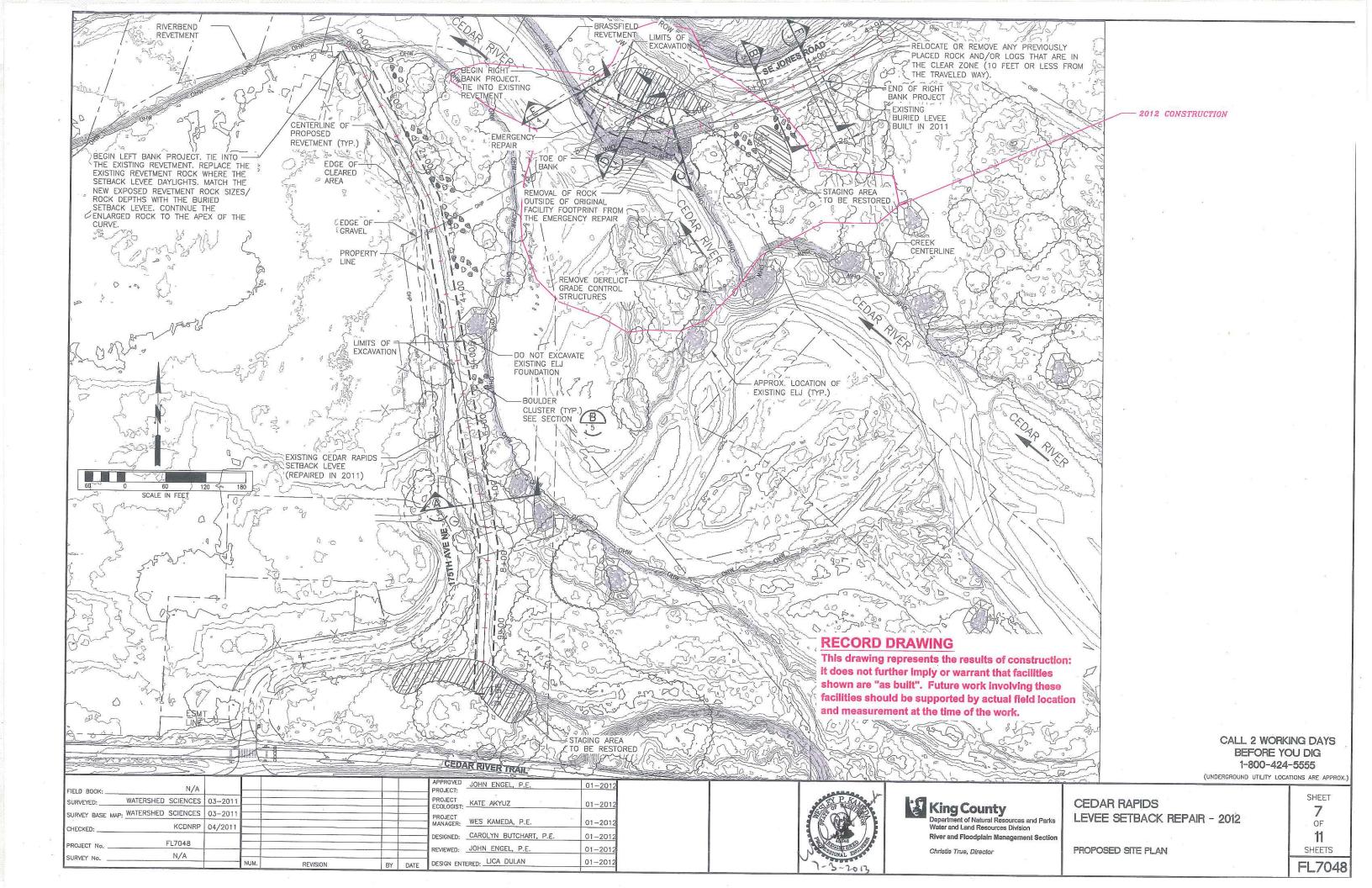
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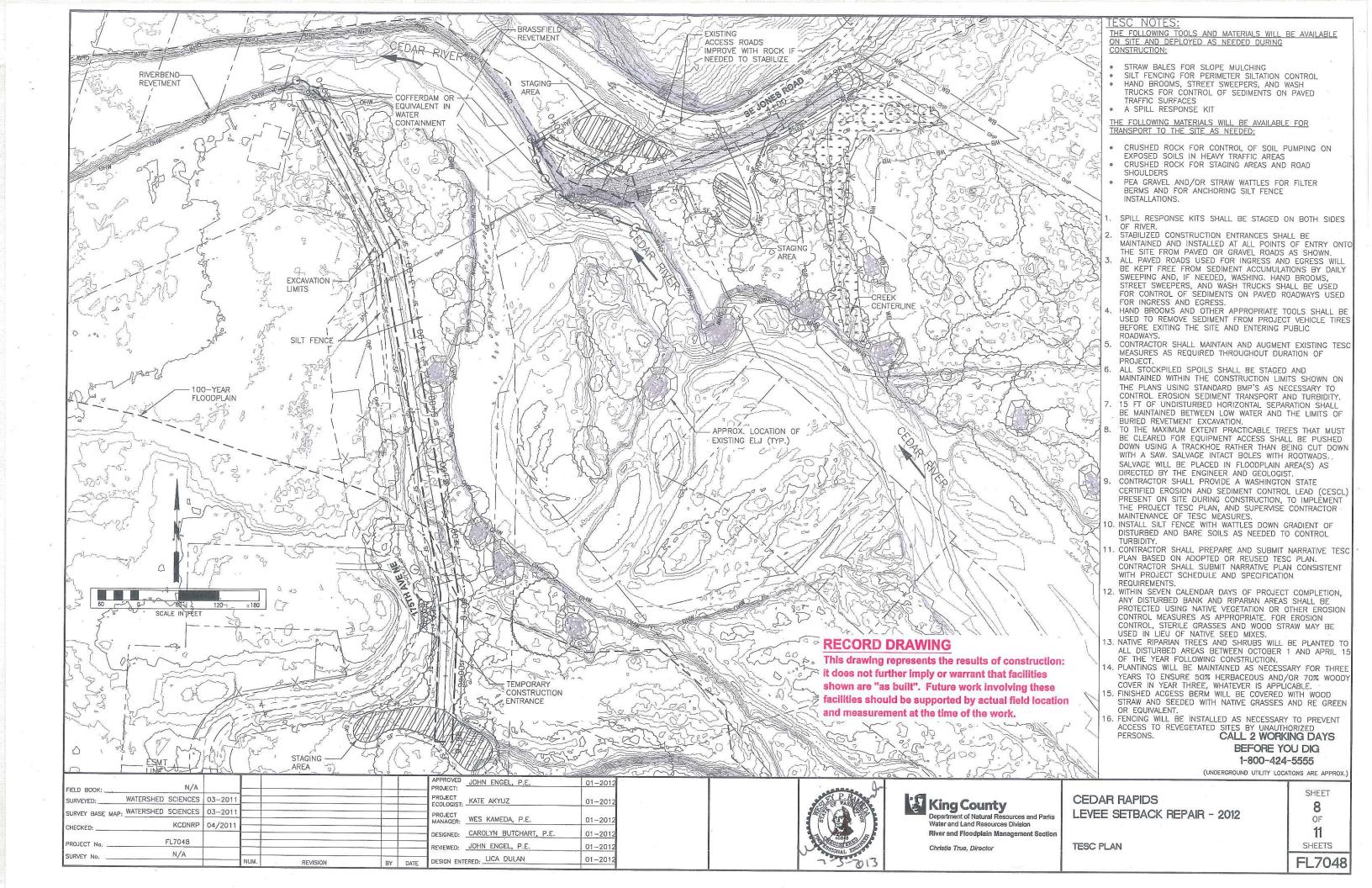
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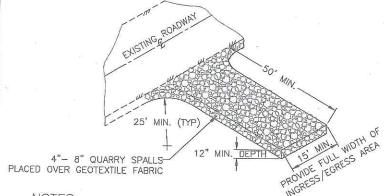
11

SHEETS

FL7048







NOTES:

- ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS MUST BE REMOVED IMMEDIATELY.
- VEHICLE TIRES SHALL BE INSPECTED TO ENSURE THEY ARE FREE OF MUD BEFORE ENTERING PUBLIC ROADWAYS.
- 3. PROVIDE FLAGGING FOR CONSTRUCTION VEHICLES ENTERING AND LEAVING SITE AND ENTERING PUBLIC ROADWAYS.
- 4. CONTRACTOR SHALL MAINTAIN AND AUGMENT EXISTING STABILIZED CONSTRUCTION ENTRANCES AS NEEDED TO CONTROL SEDIMENT.

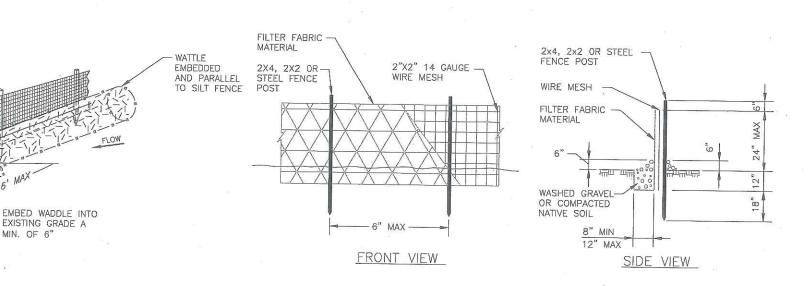
STEEL OR

PERSPECTIVE VIEW

STABILIZED CONSTRUCTION ENTRANCE







2" x 2" x 3' AT 3' TO 5' SPACING ON CENTER WOODEN STAKE

WATTLE

SCALE: N.T.S.

WATTLE -

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SILT FENCE DETAIL SCALE: N.T.S.

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FIELD BOOK:	N/A						APPROVED JOHN ENGEL, P.E.	01-2012
SURVEYED: WATERSH	ED SCIENCES	03-2011					PROJECT KATE AKYUZ	01-2012
SURVEY BASE MAP: WATERSH	ED SCIENCES	03-2011					DDG ISGT	01-2012
CHECKED:	KCDNRP	04/2011					MANAGER: WES KAMEDA, P.E.	01-2012
PROJECT No.	FL7048						DESIGNED: CAROLYN BUTCHART, P.E.	01-2012
SURVEY No.	N/A			1000			REVIEWED: JOHN ENGEL, P.E.	01-2012
30RVET 110.	1971		NUM,	REVISION	BY	DATE	DESIGN ENTERED: LICA DULAN	01-2012





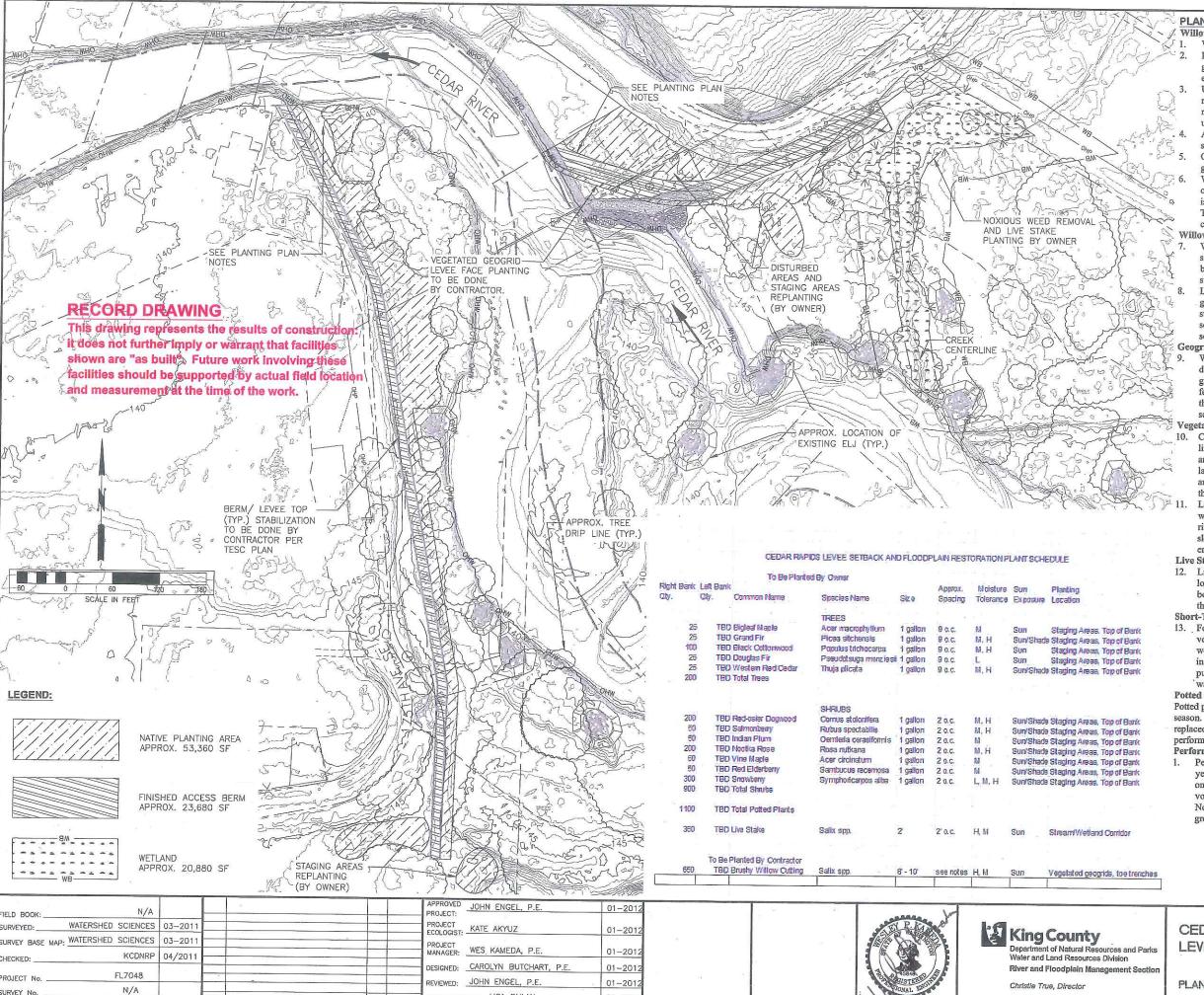
River and Floodplain Management Section

Christie True, Director

CEDAR RAPIDS LEVEE SETBACK REPAIR - 2012

TESC DETAILS

SHEET 9 OF 11 SHEETS FL7048



01-201

DESIGN ENTERED: LICA DULAN

SURVEY No.

PLANTING PLAN NOTES:

Willow Harvesting and Installation:

- Willow cuttings shall be collected only from locations approved by owner, Harvest crew members shall wear appropriate protective clothing (chaps, gloves, eye and ear protection) and be trained in the safe use of cutting
- equipment including loppers and chain saws. Unless otherwise directed, no more than one third of the willows shall be removed from any given willow harvesting location. Cuttings should be removed evenly throughout the stand to avoid the creation of bare areas or unnecessary gaps in the canopy.
- At least six inches of the cut stems should be left above the ground to promote stand regeneration.
- Chain saws shall be refueled well away from surface water to prevent release of gasoline into the Cedar River.
- When working in areas in publicly accessible areas, signage provided by the owner shall be posted to notify passers-by that permitted vegetation harvesting is taking place. This is especially essential when working on the Cedar River Trail, which is used by pedestrians and cyclists to prevent collisions with cuttings transport vehicles.

Willow Handling and Storage:

- Whenever possible, cuttings shall be cut, bundled for transport to the planting site and installed the same day. If immediate use is not possible, cuttings shall be protected from the sun and wind, and stored in bundles in the water to stimulate root and shoot formation following planting.
- Leaves and small branches of brushy willow cuttings installed in vegetated geogrids and setback levee toe trenches shall not be trimmed, because small stems contain nodes that serve as plant propagules when in contact with moist soil. To save time, do not trim the tips of the cuttings that overhang the geogrid soil layers.

Geogrid and Levee Setback Toe Stem Diameter and Length:

Willow cuttings for live geogrid construction shall be at least one inch in diameter at the butt end and long enough to overhang the outer edge of the geogrid soil layers by up to one foot. On this project site cuttings will average 6 feet in length, tapering to shorter lengths as bank reconstruction proceeds from the lower bank to the finished slope elevation. Cuttings installed in the repaired setback levee toe excavation zone shall be 6 feet long.

Vegetated Geogrid Lavers:

- Cover the full length and width of each sequentially constructed structural fill lift with a minimum 2" thick layer of Groco (or equivalent) amended topsoil and thoroughly water it. After placing the live willow cuttings on the lower soil layer, cover them with another minimum 2" thick layer of Groco (or equivalent) amended topsoil and thoroughly water it to form a soil "envelope" that encloses the cuttings in wet soil.
- Live willow cuttings shall be placed within the above-described soil envelope with the butt ends pointing toward the cut slope and the tips pointing toward the river, with up to one foot of the tips protruding from the face of the finished slope. Criss-crossing or interlacing the cuttings is acceptable as long as the butt ends are oriented toward the cut bank and the tips are oriented toward the river.

Live Stakes for wetland corridor:

12. Lives stakes shall be at least 1 inch in diameter at the butt end, and 36 inches long. Leaves and branches of willow live stakes shall be removed, and the bottom end of each cutting shall be beveled to facilitate driving the cuttings into the ground to a depth of 18 inches.

Short-Term Summer Watering:

13. Following completion of earthwork the owner will water live geogrids and vegetated levee toe trenches at least once a week until the onset of cool, rainy weather. During subsequent growing seasons water may be supplied by installing a drip irrigation system, spraying water from a water truck, or pumping from the adjacent river if a Washington Department of Ecology watering permit has been issued.

Potted Plant Installation and Maintenance (to be carried out by owner): Potted plants will be installed by the owner during the 2012-2013 plant dormancy season. These planting areas will be weeded watered, and dead plants will be replaced as needed during the monitoring period to ensure attainment of the performance standards described below.

Performance Standards (to be carried out by owner):

Percent of bare ground will not exceed 15% at any time within the first three years of the monitoring period. Tree and shrub cover will be at least 10% after one year, 20% after two years and 35% after three years. Non-invasive native volunteer species can be included in the assessment of overall percent cover. Non-native invasive plants will not make up more than 10% cover in any growing season during the monitoring period.

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PLANTING PLAN

CEDAR RAPIDS LEVEE SETBACK REPAIR - 2012

11 SHEETS FL7048

SHEET

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OF

